

I2C LLD

Release Notes

Applies to Product Release: 01.00.00.16
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I2C LLD version 01.00.00.16

Overview

This document provides the release information for the latest I2C Low Level Driver which should be used by drivers and application that interface with I2C IP.

I2C LLD module includes:

- Compiled library of I2C LLD.
- Source code.
- API reference guide
- User Guide

LLD Dependencies

LLD is dependent on following external components delivered in PDK package:

- CSL

New/Updated Features and Quality

Release 1.0.0.15

REQ #	Description
	Added SMP support

Release 1.0.0.13

REQ #	Description
	Add J7 support

Release 1.0.0.12

REQ #	Description
PRSDK-4308	Enable I2C PRUSS Firmware running on PRU-ICSS0 instance for AM437x
PRSDK-4525	Add support for makefile based unit test update for AM65xx
PRSDK-4123	Align AM65xx unit tests name & directory structure for system test

Release 1.0.0.10

REQ #	Description
PRSDK-3118	PRUSS-I2C-FW: 100KHz, 400KHz & 1MHz I2C mode
PRSDK-3226	PRUSS-I2C-FW: SMBUS Support
PRSDK-3227	PRUSS-I2C-FW: SCL read and slave reset feature to avoid I2C Lockup
PRSDK-3228	PRUSS-I2C-FW: Internal loopback feature
PRSDK-3028	PRUSS-I2C-FW: Enable Firmware and RTOS Driver Support
PRSDK-3028	PRUSS-I2C-FW: Enable Firmware and RTOS Driver Support

Release 1.0.0.9

REQ #	Description
New feature	Added AM574x support
Enhancement	Migrated to gcc 6.3.1

Release 1.0.0.8

REQ #	Description
New feature	TDA2px support

Release 1.0.0.7

REQ #	Description
PRSDK-2006	Update DRA78x Platform
PRSDK-2131	PDK support for DRA72x

Release 1.0.0.6

REQ #	Description
PRSDK-1804	I2C: Support for 10-bit addressing mode
PRSDK-1536	PDK C66x Control Code Drivers: Use Event Combiner for DSP interrupt registration
PRSDK-1899	I2C: All the HW/IP error status should be returned to the application
PRSDK-1446	Remove board_cfg.h dependency
PRSDK-1516	PDK: I2C Driver Support for OMAPL137/OMAPL138,C674x
PRSDK-1333	I2C bus recovery in case of I2C timeout is needed

Release 1.0.0.5

REQ #	Description
PRSDK-44	Add iceK2G support
PRSDK-1000	TI RTOS I2C: Slave mode support
PRSDK-1301	PDK: LLD: i2c support and verification for dra78x (M4)
PRSDK-1444	Add DRA75x support
PRSDK-1086	Add slave mode support for K2G

Release 1.0.0.4

Requirement Number	Description
PRSDK-1098	Port back the latest ADAS CSL changes to PDK CSL

Release 1.0.0.3

- DAL implementation corresponding to Keystone devices is relocated to CSL directory.
- DAL implementation corresponding to AM devices is reused from the CSL-FL.
- All the examples/test project bios config files are updated to include CSL library.
- Added Bus recovery IOCTL command in IP v1 driver

Release 1.0.0.2

- Added SoC I2C probe IOCTL command in IP v1 driver
- Added I2C bus frequency configuration IOCTL command in IP v1 driver
- Added SoC driver and test/example support for K2G
- Added A15 test/example support for K2L/K2E
- Added SoC driver and test/example support for TDA2ex/TDA2xx/TDA3xx
- Added temperature sensor application for AM572x GP EVM
- Cleaned up bios config file for AM572x/AM571x/AM437x/AM335x
- Fixed Klocwork/Misra-C compilation warnings

Release 1.0.0.1

- Added C66 lib and test/example support for Keystone II
- Added A15 lib and test/example support for K2HK
- Added lib and test/example support for Keystone I
- Added M4 support for AM571x and AM572x
- Fixed Klocwork/Misra-C compilation warnings
- Added benchmarking support

This is an **engineering release**, tested by the development team for early integration effort

Release 1.0.0.0

- Initial release of low level driver
- Following IRs have been raised

- IR1 – **SDOC M00114522** – EDMA Support for I2C Driver to be added.
- IR2 – **SDOC M00114523** - Temperature Sensor application for the I2C Driver to be added.
- IR3 - **SDOC M00114857** - Call back mode is not working in I2C Driver.

Resolved Incident Reports (IR)

Release 1.0.0.16:

IR #	Description
PRSDK-6211	support C66x core independent library and example for J721E
PRSDK-6233	Enabling all cores for j7
PRSDK-6348	fix Misra-C issues

Release 1.0.0.15:

IR #	Description
PRSDK-4085	Add j721e_evm build support
PRSDK-4967	one LLD library support for R5 on J7
PRSDK-3291	Rename c7x to c7x_1

Release 1.0.0.14:

IR #	Description
PRSDK-5114	Update pin mux macros for AM335x
PRSDK-5273	RTSC dependencies added
PRSDK-3586	J7 to J721E
PRSDK-5331	Update RTSC package.xs for I2C DRV dependency on PRUSS DRV
PRSDK-1255	add timeout test case for polling mode
PRSDK-3715	Migrate to new CSL SOC alias change

Release 1.0.0.13:

IR #	Description
PRSDK-4123	Align AM65xx unit tests name & directory for system test
PRSDK-4525	add test/example support on am65xx-idk platform
PRSDK-4698	enable high speed mode in the driver
PRSDK-4704	MPU R5 examples. Increase size of region 1 to 32K
PRSDK-4583	Fix bug for IEP CMP status write latency
PRSDK-4583	Remove context restore/save for AM437x ICSS0 HS mode.
PRSDK-4813	Fix for Klocwork issue in i2c-llid-rtos
PRSDK-2892	Added Non-executable flag to device peripheral memory MMU config
PRSDK-2892	Excluded OCMC memory region from non-executable section
PRSDK-4169	Adding sciclient as a dependency for board
PRSDK-297	Fix example warnings.

Release 1.0.0.11:

IR #	Description
PRSDK-2194	Added RULES_MAKE macro
PRSDK-3669	Fix CPP build issue
PRSDK-3943	Update example application to properly initialize I2C FW

Release 1.0.0.10:

IR #	Description
PRSDK-3474	PDK: error: 'I2C_HWIP_MAX_CNT' undeclared
PRSDK-2819	Networking API header files are not compatible with C++
PRSDK-3471	PDK: unresolved symbols Compilation failure on AM5 platforms
PRSDK-3447	I2C PRUSS FW: address all pending comments for code review.
PRSDK-3566	I2C HW IP example .out file should not include any SW IP lib/functions
PRSDK-3040	OMAPL138 DSP example app execution fails when booting from SD card
PRSDK-3580	I2c: error: 'pru_dmem0_rev1_start' undeclared here
PRSDK-3580	I2c: error: 'pru_dmem0_rev1_start' undeclared here
PSDKRA-108	DRA78x build errors for all CCS examples
PSDKRA-54	Refactor pad configuration sequence

Release 1.0.0.8:

IR #	Description
PRSDK-2923	I2C driver Error code overlap

Release 1.0.0.7:

IR #	Description
PRSDK-2067	RTOS AM570x-EVM: All DSP tests are failing because of no, or just one character, output to UART
PRSDK-2068	RTOS AM570x-EVM: All M4 tests are failing because of no, or just one character, output to UART
PRSDK-2069	RTOS AM570x-EVM: Many ARM tests are failing
PRSDK-2071	Fix Misra-C/KlocWork errors in i2c/gpio/uart/spi LLD
PRSDK-2207	I2C driver v0 is not using timeout parameter in Blocking mode
PRSDK-2417	I2C_ErrorRecovery_evmAM572x_armExampleProject build error

Release 1.0.0.6

REQ #	Description
PRSDK-2063	Disabled profiling utils library references
PRSDK-2044	I2C eeprom unit test failed due to the incorrect merge of PRSDK-1899
PRSDK-776	Check for DATA_SECTION, DATA_ALIGN applicable for M4 and GCC and make appropriate changes
PRSDK-1761	fix an issue AM571x tests are using AM572x board library

Release 1.0.0.5

REQ #	Description
PRSDK-1575	I2C_v0.h and I2C_v1.h should be moved to soc folder
PRSDK-1603	I2C_transfer() API need to keep backward compatibility
PRSDK-1609	I2C eeprom test back to back transactions do not work in low speed mode

Release 1.0.0.4

IR Parent/ Child Number	Severity Level	IR Description
PRSDK-793	Major	TDA file filtering in RTOS makefiles

IR Parent/ Child Number	Severity Level	IR Description
PRSDK-880	Major	Makefile infrastructure is not able to limit the application build for a given evm
PRSDK-803	Major	Move common makefile rules to infrastructure
PRSDK-839	Major	klocwork bug introduced due to version update from 10.2.1 to 11.1.0
PRSDK-781	Major	Klocwork report for TI RTOS drivers : UART, I2C, SPI, McASP and MMCSD
PRSDK-932	Major	I2C_soc.c for C66x has same interrupt for all I2C instances

Known Issues/Limitations

IR Parent/ Child Number	Severity Level	IR Description
PRSDK-126	Major	EDMA Support for I2C to be added.

Licensing

Please refer to the software Manifest document for the details.

Delivery Package

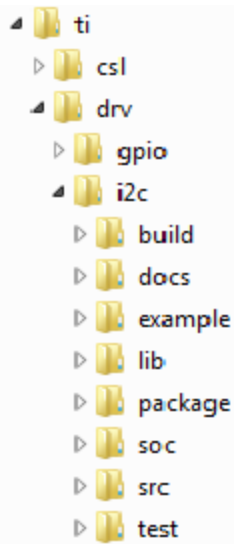
There is no separate delivery package. The I2C LLD is being delivered as part of PDK.

Installation Instructions

The LLD is currently bundled as part of Platform Development Kit (PDK). Refer installation instruction to the release notes provided for PDK.

Directory structure

The following is the directory structure after the I2C LLD package has been installed:



The following table explains each individual directory:

Directory Name	Description
ti/drv/i2c	<p>The top level directory contains the following:-</p> <ol style="list-style-type: none"> 1. <u>XDC Build and Package files</u> These files (config.bld, package.xdc etc) are the XDC build files which are used to create the I2C package. 2. <u>Exported Driver header file</u> Header files which are provided by the I2C low level driver and should be used by the application developers for driver customization and usage.
ti/drv/i2c/build	The directory contains internal XDC build related files which are used to create the I2C low level driver package.
ti/drv/i2c/docs	The directory contains the I2C low level driver documentation.
ti/drv/i2c/example	The “example” directory in the I2C low level driver has the examples demonstrating the usage of I2C driver.
ti/drv/i2c/lib	The “lib” folder has pre-built Big and Little Endian libraries for the I2C low level driver along with their <u>code/data size information</u> .
ti/drv/i2c/package	Internal I2C low level driver package files.
ti/drv/i2c/soc	This directory contains SoC specific files.
ti/drv/i2c/src	Source code for the I2C low level driver.
ti/drv/i2c/test	The “test” directory in the I2C low level driver has test application which is used by the development team to test the I2C low level driver.

Customer Documentation List

Table 1 lists the documents that are accessible through the **/docs** folder on the product installation CD or in the delivery package.

Table 1 Product Documentation included with this Release

Document #	Document Title	File Name
1	API documentation (generated by Doxygen)	docs/i2cIldDocs.chm
2	Release Notes	docs/ReleaseNotes_I2C_LLD.pdf
3	Software Manifest	docs/I2C_LLD_SoftwareManifest.html